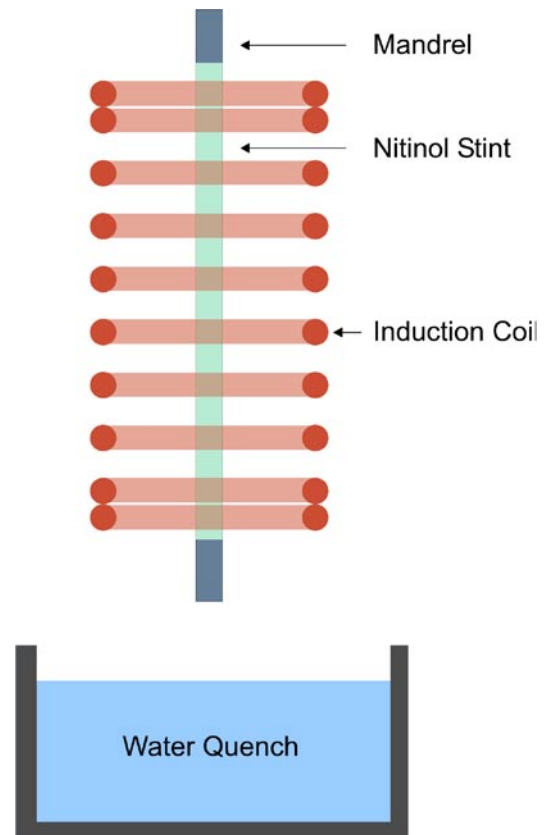


Heating Setting Nitinol Medical Stints



Research Objective

Heat setting medical stints on mandrel to set proper size

Parts & Materials Description

Nitinol metal stints, 5mm x 150mm mandrel

Temperature Required

510°C +/- 2°

Induction Heating Equipment

1kW RF power supply and a .66 microfarad heat station, 9 turn round coil, fixture to hold 5 x 150mm mandrel, AE optical pyrometer, water quench tub.

Operating Frequency

197 kHz

Heating Procedure

This heat treating process required very precise temperature control. The temperature could not vary over 2 degrees along the length of the mandrel

The stint was slid onto the mandrel and the mandrel placed into the coil. The power was set to ramp up to 510°C in 2 minutes so that the temperature across the mandrel remained relatively even. As set point temperature is reached, the mandrel was held for 2 to 3 minutes. The part was then removed from the coil and quenched in water.

Conclusion

The stints heated very well on the mandrel. The ramp up rate was minimized to 2 minutes to avoid over heating at the ends of the zones. After the mandrel/stint was quenched, the stint would easily slide off the mandrel by itself.